IN THE CLAIMS:

Please amend Claims 36, 38, 41, and 42 as indicated below.

1. (Original) A method for multiplexing data streams comprising the steps of:

obtaining a first input data stream;

obtaining first time stamp information for the first input data stream;

obtaining buffer delay information;

determining a first lowest bit occurrence constraint based on the first time stamp information and the buffer delay information;

determining a first highest bit occurrence constraint based on shifting the first lowest bit occurrence constraint upward;

determining a first earliest time constraint based on the first highest bit occurrence constraint; and

determining a first latest time constraint based on the first lowest bit occurrence constraint.

2. (Original) The method of claim 1 wherein the first lowest bit occurrence constraint increases substantially linearly over time.

3. (Original) The method of claim 1 wherein the first lowest bit occurrence constraint varies from increasing linearly over time to accommodate drift of the first input data stream

4. (Original) The method of claim 1 wherein the first input data stream has a substantially constant bit rate.

5. (Original) The method of claim 1 wherein the first input data stream varies from a constant bit rate as influenced by drift.

6. (Original) The method of claim 1 wherein the first input data stream has a constant frame rate.

7. (Original) The method of claim 1 wherein the first input data stream has a variable frame rate.

8. (Original) The method of claim 1 wherein the first input data stream has a constant frame size.

9. (Original) The method of claim 1 wherein the first input data stream has a variable frame size.

10. (Original) The method of claim 1 wherein the first input data stream includes buffer delay information.

11. (Original) The method of claim 1 wherein the first input data stream is selected from a group consisting of:

a video stream;

an audio stream;

a closed caption stream; and

a content protection data stream.

12. (Original) The method of claim 1 wherein the step of determining the first highest bit occurrence constraint based on shifting the first lowest bit occurrence constraint upward further comprises the step of:

determining the first highest bit occurrence constraint based on shifting the first lowest bit occurrence constraint upward by a constant amount.

13. (Original) The method of claim 1 further comprising the steps of:

obtaining a second input data stream;

obtaining second time stamp information for the second input data stream;

determining a second lowest bit occurrence constraint based on the second time stamp information and the buffer delay information;

determining a second highest bit occurrence constraint based on shifting the second lowest bit occurrence constraint upward;

determining a second earliest time constraint based on the second highest bit occurrence constraint; and

determining a second latest time constraint based on the second lowest bit occurrence constraint.

14. (Original) The method of claim 13 wherein the second input data stream has a second substantially constant bit rate.

15. (Original) The method of claim 13 further comprising the steps of:

dividing the first input data stream into a first plurality of packets;

dividing the second input data stream into a second plurality of packets;

combining the first plurality of packets and the second plurality of packets to provide an output data stream.

16. (Original) The method of claim 15 wherein the step of combining the first plurality of packets and the second plurality of packets to provide an output data stream further comprises the step of:

combining the first plurality of packets and the second plurality of packets in an order determined by the first earliest time constraint and the first latest time constraint for each

packet of the first plurality of packets and second earliest time constraint and the second latest time constraint for each packet of the second plurality of packets.

17. (Original) The method of claim 16 wherein the first latest time constraint for each packet of the first plurality of packets is determined in relation to a first initial bit of each packet of the first plurality of packets and the second latest time constraint for each packet of the second plurality of packets is determined in relation to a second initial bit of each packet of the second plurality of packets.

18. (Original) The method of claim 17 wherein the first earliest time constraint for each packet of the first plurality of packets is determined in relation to a first final bit of each packet of the first plurality of packets and the second earliest time constraint for each packet of the second plurality of packets is determined in relation to a second final bit of each packet of the second plurality of packets.

19. (Original) The method of claim 13 further comprising the step of:

calculating an initial current time value.

20. (Original) The method of claim 19 wherein the step of calculating an initial current time value comprises the step of:

calculating the initial current time value by selecting a lowest value of the first earliest time constraint of an initial packet of the first plurality of packets and the second earliest time constraint of an initial packet of the second plurality of packets.

21. (Original) The method of claim 20 wherein the step of combining the first plurality of packets and the second plurality of packets to provide an output data stream comprises the steps of:

marking as candidates the packets of the first plurality of packets that have not yet been output and for which the first earliest time constraint is less than or equal to the current time value;

marking as candidates the packets of the second plurality of packets that have not yet been output and for which the second earliest time constraint is less than or equal to the current time value.

22. (Original) The method of claim 21 further comprising the step of:

in the absence of candidates, combining an empty packet into the output data stream.

23. (Original) The method of claim 22 further comprising the step of:

calculating a new current time value based on a size of the empty packet.

24. (Original) The method of claim 21 further comprising the step of:

when exactly one of the candidates is marked, combining the marked candidate into the output stream.

25. (Original) The method of claim 24 further comprising the step of:

calculating a new current time value based on a size of the marked candidate.

26. (Original) The method of claim 21 further comprising the step of:

when more than one of the candidates is marked, selecting a selected candidate for which a latest time constraint of the first latest time constraint and the second latest time constraint is smallest.

27. (Original) The method of claim 26 further comprising the step of:

combining the selected candidate into the output data stream.

28. (Original) The method of claim 27 further comprising the step of:

calculating a new current time value based on a size of the selected candidate.

29. (Original) The method of claim 21 further comprising the step of:

when more than one of the candidates is marked, randomly selecting a selected candidate from among the marked candidates.

30. (Original) The method of claim 29 further comprising the step of:

combining the selected candidate into the output data stream.

31. (Original) The method of claim 30 further comprising the step of:

calculating a new current time value based on a size of the selected candidate.

32. (Original) The method of claim 15 wherein the output data stream is a Moving Picture Experts Group (MPEG) stream.

33. (Original) A data stream multiplexer receiving a plurality of input data streams and combining the plurality of input data streams to provide an output data stream, the multiplexer comprising:

a first input data stream input for receiving a first input data stream;

a first lowest bit occurrence constraint calculator operatively coupled to the first input data stream input for calculating a first lowest bit occurrence constraint based on first time stamp information derived from the first input data stream and buffer delay information;

a first highest bit occurrence constraint calculator operatively coupled to the first lowest bit occurrence constraint calculator for calculating a first highest bit occurrence constraint based on shifting the first lowest bit occurrence constraint upward;

a first earliest time constraint calculator operatively coupled to the first highest bit occurrence constraint calculator for calculating a first earliest time constraint based on the first highest bit occurrence constraint; and

a first latest time constraint calculator operatively coupled to the first lowest bit occurrence constraint calculator for calculating a first latest time constraint based on the first lowest bit occurrence constraint.

34. (Original) The data stream multiplexer of claim 33 further comprising:

a second input data stream input for receiving a second input data stream;

a divider operatively coupled to the first input data stream input and to the second input data stream input to divide the first input data stream into a first plurality of packets and to divide the second input data stream into a second plurality of packets;

a combiner coupled to the divider for combining the first plurality of packets and the second plurality of packets to provide an output data stream.

35. (Original) The data stream multiplexer of claim 34 wherein the output data stream is a drift-free Moving Picture Experts Group (MPEG) program stream.

36. (Currently amended) A method for [compensating for drift among a plurality of input] multiplexing data streams comprising the steps of:

effectively adjusting a $t_{earliest}$ value and a t_{latest} value for each packet of a plurality of packets for each [input] data stream of the plurality of [input] data streams; and

multiplexing the packets from the plurality of [input] data streams according to the $t_{earliest}$ value and the t_{latest} value for each packet of the plurality of packets for each [input] data stream of the plurality of [input] data streams to provide a drift compensated output data stream.

37. (Original) The method of claim 36 wherein the relationship between the $t_{earliest}$ value and the t_{latest} value is determined based on buffer delay information.

38. (Currently amended) The method of claim 36 wherein the plurality of [input] data streams have substantially constant bit rates.

39. (Original) The method of claim 38 wherein the plurality of the streams vary from the substantially constant bit rates as influenced by drift.

40. (Currently amended) The method of claim 37 wherein the buffer delay information is derived from the plurality of [input] data streams.

41. (Currently amended) The method of claim 36 wherein the plurality of [input] data streams are selected from a group consisting of:

a video stream;

an audio stream;

a closed caption stream; and

a content protection data stream.

42. (Currently amended) The method of claim 36 wherein drift the compensated output data stream is a Moving Picture Experts Group (MPEG) stream.

43. (Original) A program storage device readable by a machine, the program storage device tangibly embodying a program of instructions executable by the machine to perform steps for multiplexing data streams provided as inputs to the machine, the steps comprising:

obtaining a first input data stream;

obtaining first time stamp information for the first input data stream;

obtaining buffer delay information;

determining a first lowest bit occurrence constraint based on the first time stamp information and the buffer delay information;

determining a first highest bit occurrence constraint based on shifting the first lowest bit occurrence constraint upward;

determining a first earliest time constraint based on the first highest bit occurrence constraint; and

determining a first latest time constraint based on the first lowest bit occurrence constraint.

44. (Original) The program storage device of claim 43 wherein the step of determining the first highest bit occurrence constraint based on shifting the first lowest bit occurrence constraint upward further comprises the step of:

determining the first highest bit occurrence constraint based on shifting the first lowest bit occurrence constraint upward by a constant amount.

45. (Original) The program storage device of claim 43 further comprising the steps of:

obtaining a second input data stream;

obtaining second time stamp information for the second input data stream;

determining a second lowest bit occurrence constraint based on the second time stamp information and the buffer delay information;

determining a second highest bit occurrence constraint based on shifting the second lowest bit occurrence constraint upward;

determining a second earliest time constraint based on the second highest bit occurrence constraint; and

determining a second latest time constraint based on the second lowest bit occurrence constraint.

46. (Original) The program storage device of claim 45 further comprising the steps of:

dividing the first input data stream into a first plurality of packets;

dividing the second input data stream into a second plurality of packets;

combining the first plurality of packets and the second plurality of packets to provide an output data stream.

47. (Original) The program storage device of claim 46 wherein the step of combining the first plurality of packets and the second plurality of packets to provide an output data stream further includes combining the first plurality of packets and the second plurality of packets in an order determined by the first earliest time constraint and the first latest time constraint for each packet of the first plurality of packets and second earliest time constraint and the second latest time constraint for each packet of the second plurality of packets.

48. (Original) The program storage device of claim 45 further comprising the step of:

calculating an initial current time value.

49. (Original) The program storage device of claim 48 wherein the step of calculating an initial current time value includes the step of:

calculating the initial current time value by selecting a lowest value of the first earliest time constraint of an initial packet of the first plurality of packets and the second earliest time constraint of an initial packet of the second plurality of packets.

50. (Original) The program storage device of claim 49 wherein the step of combining the first plurality of packets and the second plurality of packets to provide an output data stream comprises the steps of:

marking as candidates the packets of the first plurality of packets that have not yet been output and for which the first earliest time constraint is less than or equal to the current time value;

marking as candidates the packets of the second plurality of packets that have not yet been output and for which the second earliest time constraint is less than or equal to the current time value.

51. (Original) The program storage device of claim 50 further comprising the step of:

in the absence of candidates, combining an empty packet into the output data stream.

52. (Original) The program storage device of claim 51 further comprising the step of:

calculating a new current time value based on a size of the empty packet.

53. (Original) The program storage device of claim 50 further comprising the step of:

when exactly one of the candidates is marked, combining the marked candidate into the output stream.

54. (Original) The program storage device of claim 53 further comprising the step of:

calculating a new current time value based on a size of the marked candidate.

55. (Original) The program storage device of claim 50 further comprising the step of:

when more than one of the candidates is marked, selecting a selected candidate for which a latest time constraint of the first latest time constraint and the second latest time constraint is smallest.

56. (Original) The program storage device of claim 55 further comprising the step of:

combining the selected candidate into the output data stream.

57. (Original) The program storage device of claim 56 further comprising the step of:

calculating a new current time value based on a size of the selected candidate.

58. (Original) The program storage device of claim 50 further comprising the step of:

when more than one of the candidates is marked, randomly selecting a selected candidate from among the marked candidates.

59. (Original) The program storage device of claim 58 further comprising the step of:

combining the selected candidate into the output data stream.

60. (Original) The program storage device of claim 59 further comprising the step of:

calculating a new current time value based on a size of the selected candidate.